

# Linen Lace Concrete

A COLLABORATION BETWEEN

Trish Belford, Senior Research Fellow, Ulster University

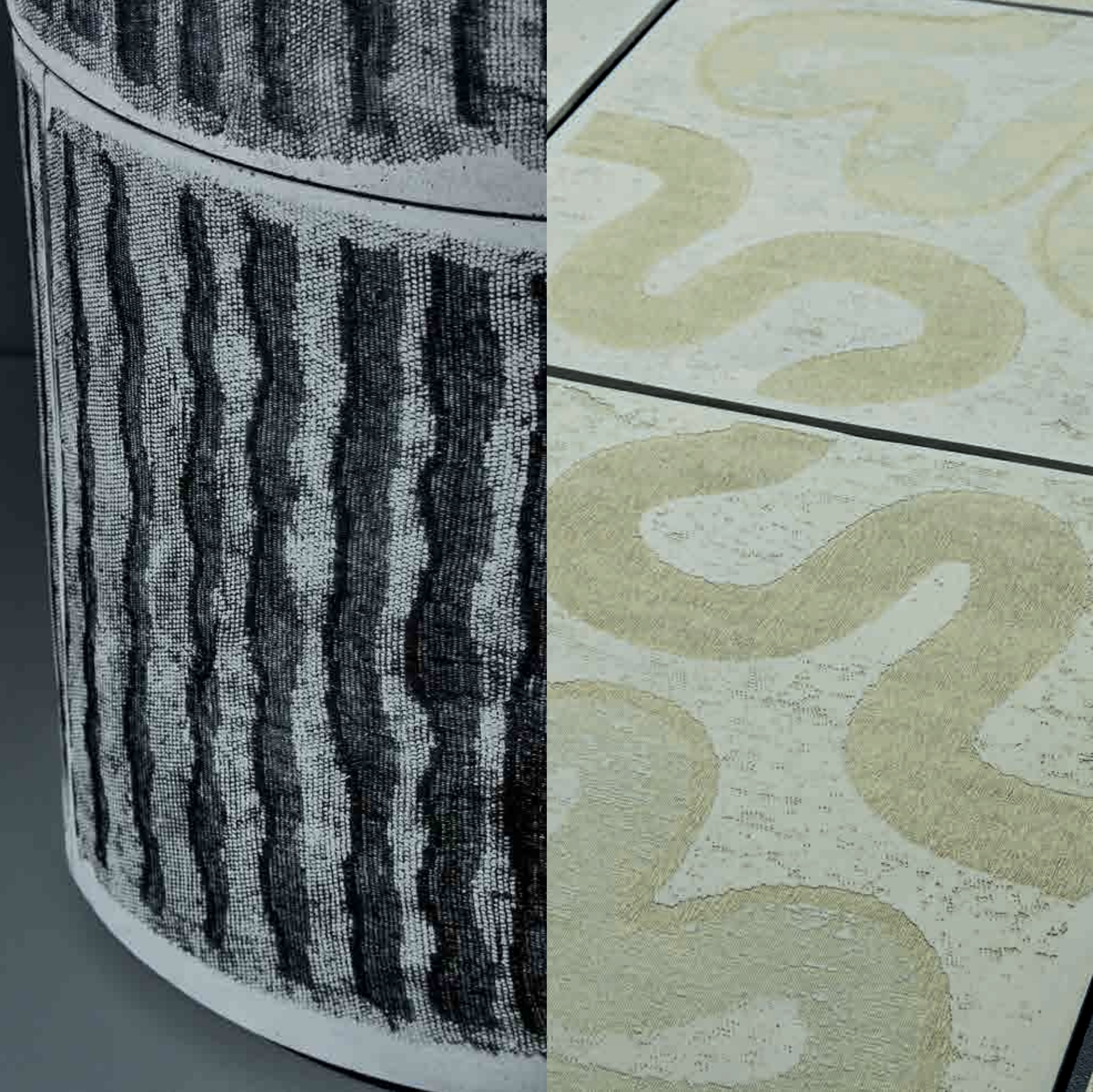
Ruth Morrow, Professor of Architecture, Queen's University Belfast

MYB Textiles, Scotland

This project looks back at traditional jacquard weaving methods whilst developing new linen woven textiles suitable for embedding in concrete.







This booklet captures the outcomes of a collaboration between Trish Belford (*textile designer*), Ruth Morrow (*architect*) and MYB Textiles, a Scottish textile company.

### Background Context

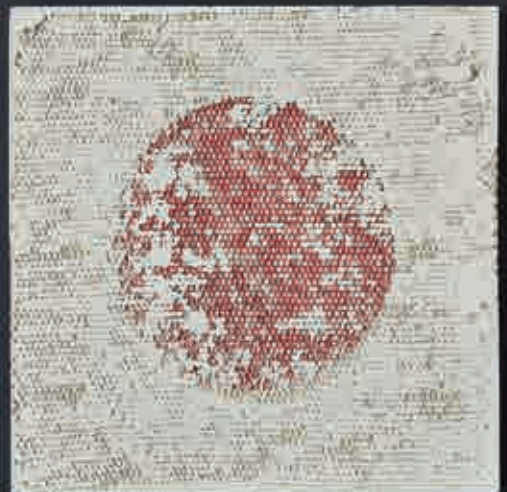
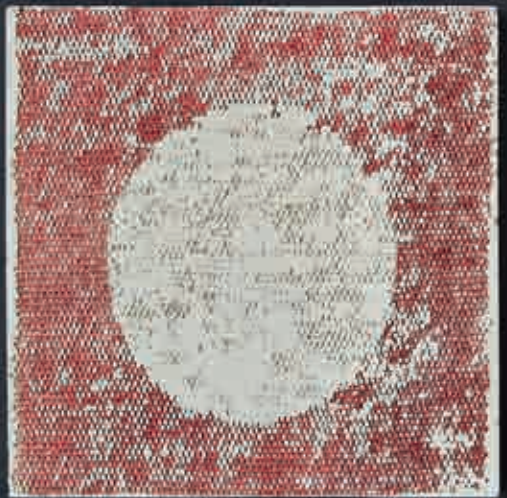
This collaboration between Belford and Morrow began back in 2005, its longevity stems from a mutual respect for and interest in each other's disciplines. When they initially started to work together there was no specific project, no identifiable process or palette of materials in mind, rather, through conversation and play, with a range of materials: lace, knit, crushed bottles, concrete, slate, they started to articulate the utopian aim of *making hard things soft*. Over time the focus was on combining concrete technology with textile techniques, aiming to expand the definition and tactile experience of concrete.

The first big commission was in 2007 when they won a public art competition. A folded concrete frieze was proposed for the entrance to Derry Playhouse, referencing the architectural elements of the building; embracing embroidery, weaving, flocking and concrete craftsmanship. At this stage Belford and Morrow were known as Girli Concrete. By 2009 they had begun to patent the technology and founded Tactility Factory Ltd to commercialise the material products and designs. By 2014 investment funding moved the Company into a new phase, during this time several large scale overseas projects were commissioned (Dubai, Cairo, Abu Dhabi, London) and 4 key processes were developed: velvet concrete, crystal concrete, linen concrete and stitched concrete. Tactility Factory Ltd ceased in 2018, but Morrow and Belford continue to develop our multi-disciplinary approach, drawing on their distinctive expertise in textiles and architecture and creatively exploring and developing new material forms.

The rest of this booklet captures one recent outpouring of our ongoing collaboration.

Supported by  
Margo Graham at MYB Textiles, Scotland  
Elizabeth Gilligan and Joe Sheridan at Queen's University Belfast  
Beth Milligan at Ulster University

Special thanks to Maurice Neill for his continued support





Linen  
Lace  
Concrete



Dot

Tide

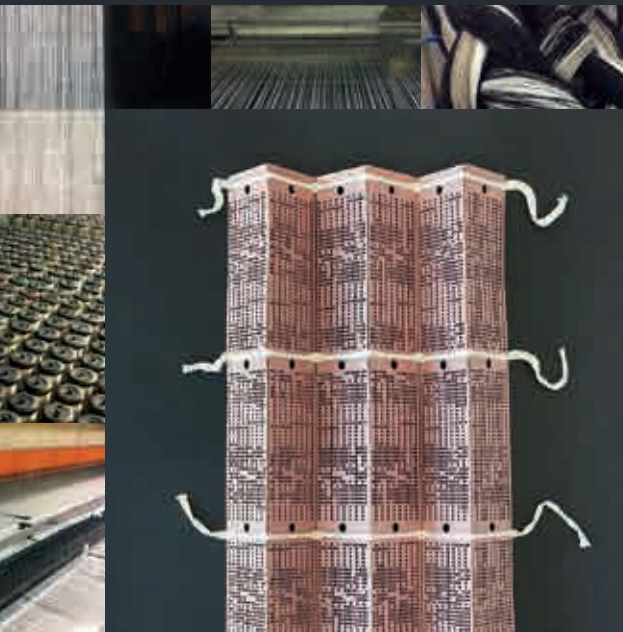
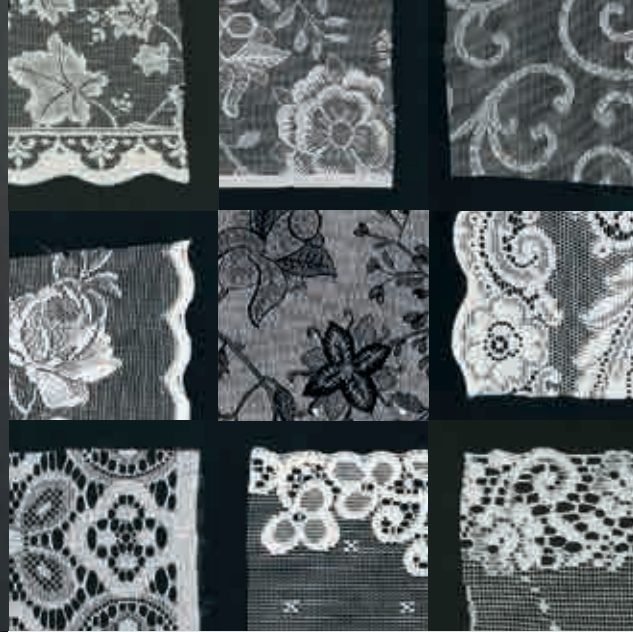
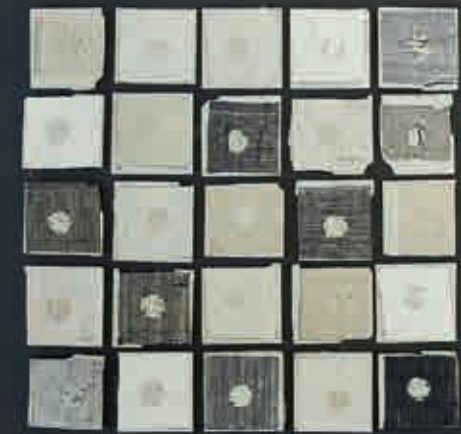


Linen Lace Concrete Exhibition  
Irish Linen Centre Museum  
& Lisburn Museum  
OCT 2018

TOP OF IMAGE  
Linen Lace Dot | 200mm x 200mm x 9mm  
BOTTOM OF IMAGE  
Linen Lace Twist | 600mm x 600mm x 10mm

RIGHT OF IMAGE  
Linen Lace Tide  
Curved Column Socks | 400mm x 600mm curved panels





# Linen and Lace

## Back to Source

Previous research by project leaders Belford and Morrow proved that linen was the most suitable textile to withstand the harsh environment of alkaline concrete. The original linen infused concrete they developed was a 3-stage process, beautiful but costly and unsustainable. In this new work, they return to the initial concept of using linen yarn, with the aim to create a 1-stage weave process. This has been achieved by working in collaboration with MYB Textiles, Scotland, a 115-year-old internationally celebrated company. MYB are the only remaining UK industrial producer of woven lace, renowned for tradition and innovation, they were the perfect match to develop new linen lace fabrics, where the void and solid components are equally important. MYB currently weave using cotton yarns, for this project they were asked to alter their looms to work with linen. Testing was instigated using their stock patterns, analysing the different weave settings, to use with a compatible concrete mix that reveals the pattern but holds the textile in place. A range of linen yarns were woven in-house at The Belfast School of Art and tested in Queen's University Concrete labs. MYB carried out linen trials, selecting the linen that could withstand the mechanism of their looms. A 10-point setting using traditional punch card methods for creating the design was finally selected: blending tradition with innovation and new thinking for a concrete linen.



Dot



TOP OF IMAGE

Linen Lace Dot | 200mm x 200mm x 9mm

BOTTOM OF IMAGE

Linen Lace Twist | 600mm x 600mm x 10mm

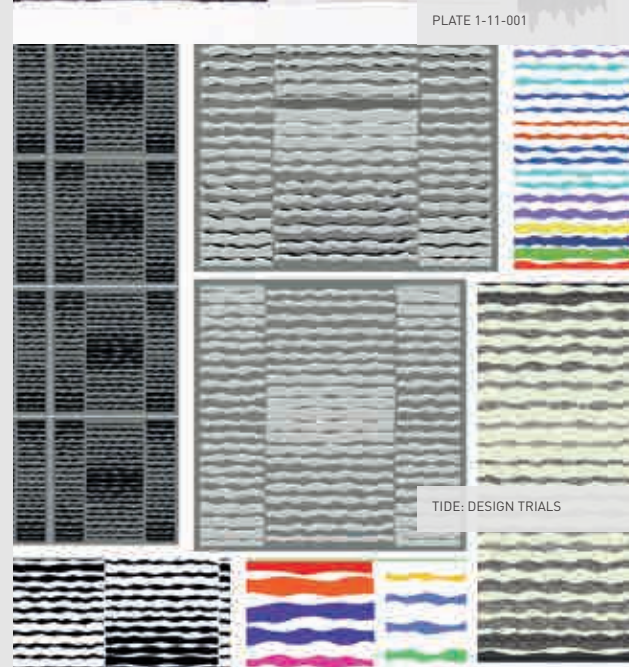
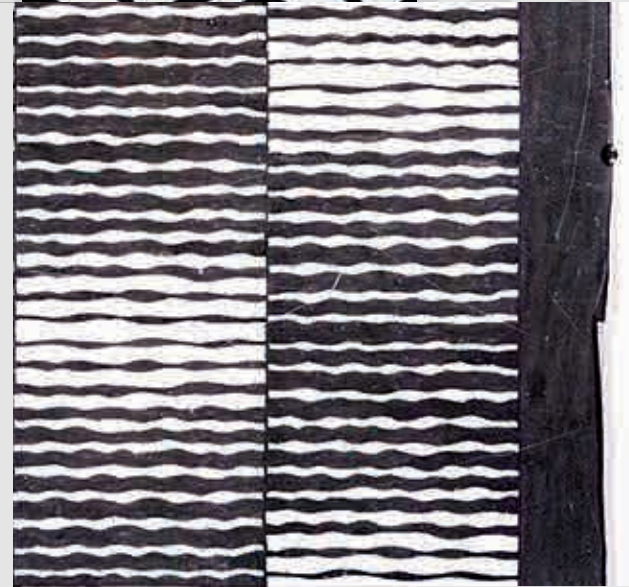




# Textile Design Development

## Liddell Linen – looking back to look forward

Making use of the recently restored William Liddell archive of glass plates as inspiration, Belford and Morrow felt it was appropriate to look back at one of Northern Ireland's most successful Jacquard Damask weaving companies, informing the new designs to be woven at MYB Textiles: Reimagining the archive to bring together two of Northern Ireland's indigenous industries – textiles and construction. Two glass plates were chosen for their potential to create rhythm, space and tactility: vital when infusing textiles with concrete where the pattern created by the negative space (concrete) is as important as the textile pattern. Plate 1-05-007, renamed *Twist* was designed to rotate through 360 degrees to meet at all edge points, and results from the weave densities were utilised to create a more tactile, three-dimensional surface. Plate 1-11-001, renamed *Tide* was designed to work across a curve, with the textile designer challenged to consider the 3D elements and how the pattern would accentuate the curve. *Dot* was inspired by the red jacquard card punching method used by MYB Textiles in production of all of the designs, a gentle nod at the past producing rhythm with the simplest of shapes.



Linen Lace Twist | 600mm x 600mm x 10mm



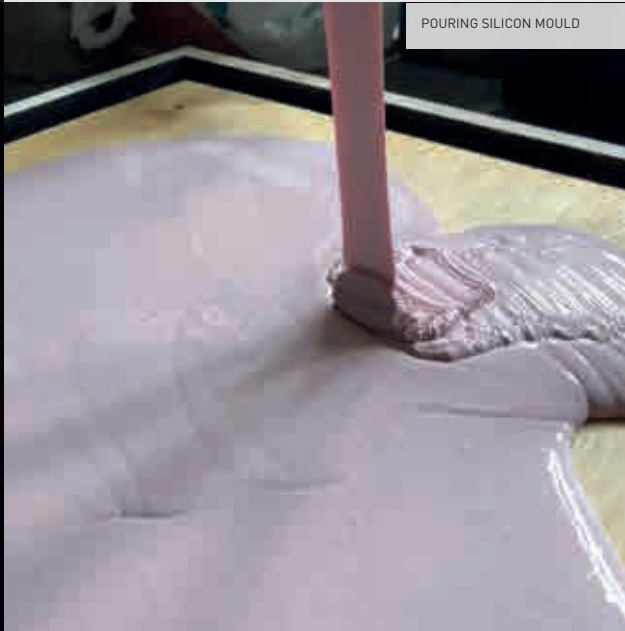


# Concrete Development

## Combining concrete and textile demands a patient hand.

Tactility isn't only experienced through touch; it can also be a visual sensation, created when light falls across an uneven or curved form. We don't need to touch it to sense the surface of the column.

When Belford and Morrow work together the act of naming their outcomes helps to solidify and strengthen the identity of the work. But sometimes they generate names that are never fully realised at that time or brought to life. So it was with the 'column sock' — a longstanding concept that never became 'a thing', until this project. Creating curved elements in concrete is relatively easy when it's a solid curved block: one simply fills up a curved mould from the top. But it's quite a different thing when it's a 'sock' and the column surface is partly made of embedded lace textiles. So they used a two-stage pouring process for the linen-lace concrete. Initially the panel was poured flat in a flexible mould and once cured, to its plasticine-like state, it was dropped into a curved stand and left to complete the curing (hardening) process. The concrete mix and the timing of process were trialled many times over until the process was perfected. Casting the *Dot* tiles and the larger *Twist* panels, in comparison to a *Tide* column sock, was a walk in the flax field.



POURING SILICON MOULD



CURVED MOULDAGE



MOULDS



Column Socks | 400mm x 600mm  
curved panels with Linen Lace Tide ombred grey

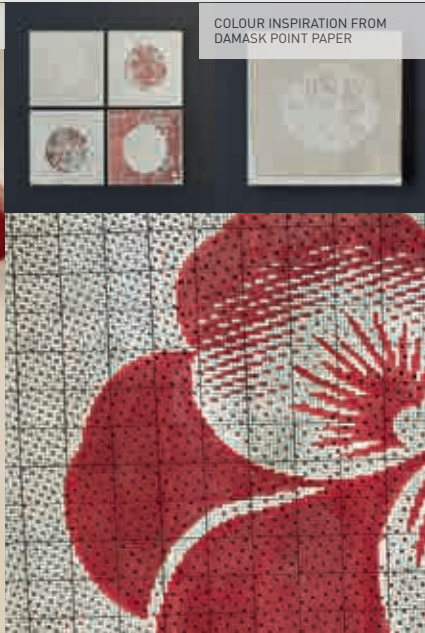


# Textile Manipulation

## Colour, Cloth and Concrete

Dyeing and screen printing are age old traditional methods of creating colour that have be utilised in the redesigning of MYB woven fabrics to bring the tradition of processing in line with the new surfaces created by the Linen Concrete.

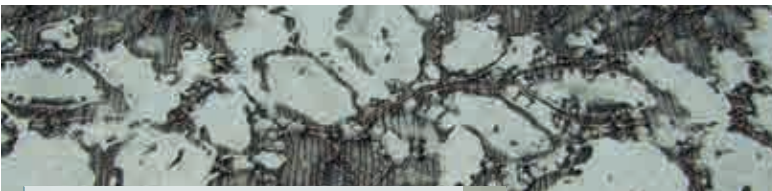
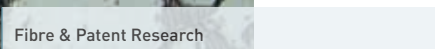
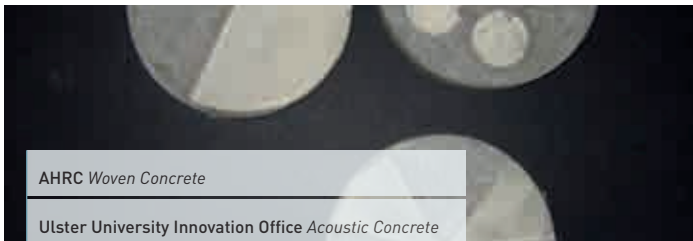



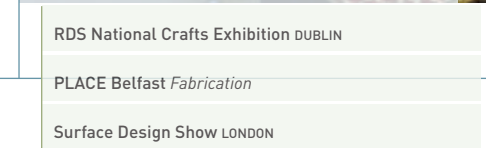
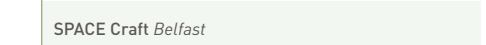

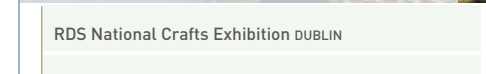

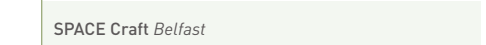
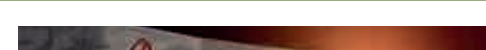
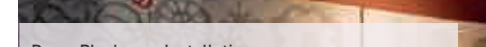
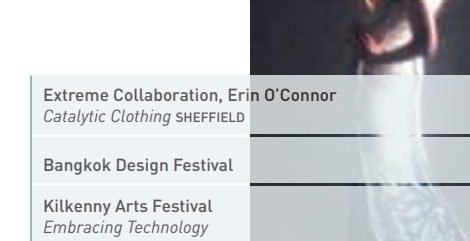


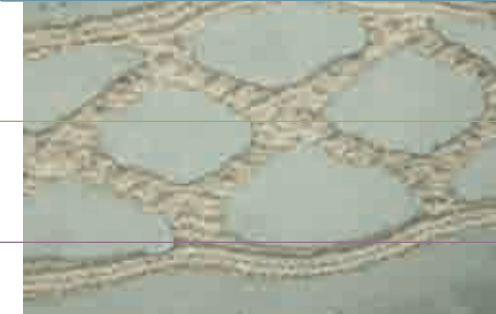


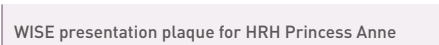
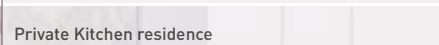


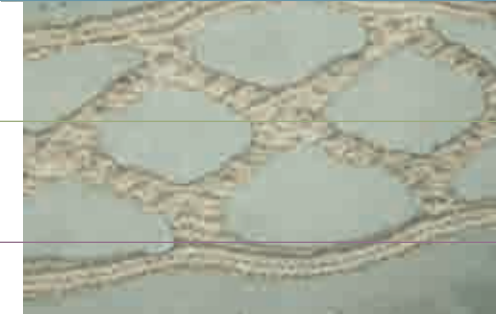

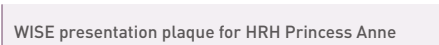
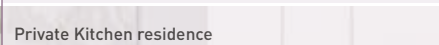


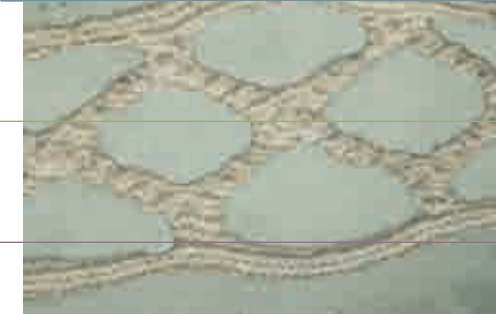

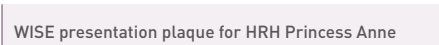
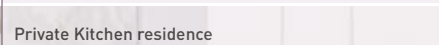


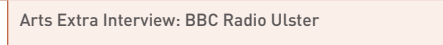



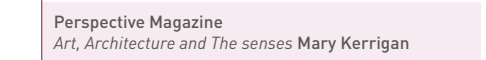
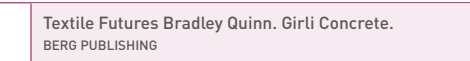
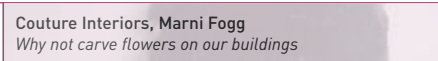
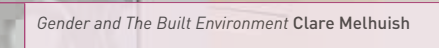

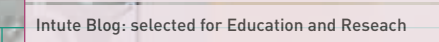
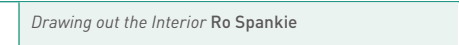
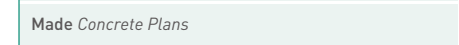


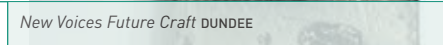
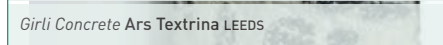
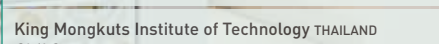
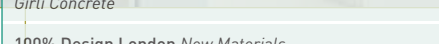

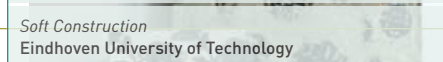


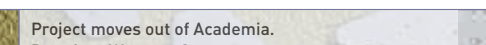



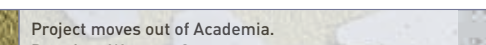
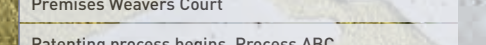

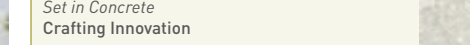
The interaction of colour with the concrete is an unknown until the full 21-day curing process is complete, often revealing unexpectedly beautiful results. The tactile part of these techniques creates a contrast to the harsh environment of working with concrete, printing and grading the colour offers the hard surface of concrete a softer aspect. The light to dark, in *Tide* was inspired by the colour grading of cathedral columns: the tones were hand dyed using traditional ombré dyeing methods. *Dot* in its unfinished state was bland and uneventful, but inspired by the shade of red used for painting the point paper, in combination with the screen printed methods created a new and subtle spin.



Linen Lace Dot | 200mm x 200mm x 9mm



## Timeline of Belford & Morrow collaboration 2005–2020

AWARDS	 Arts Council NI <i>Hard &amp; Soft Award</i>		 Fibre & Patent Research		 AHRC <i>Woven Concrete</i>		 Ulster University Innovation Office <i>Acoustic Concrete</i>		 Invest NI The Big Idea		 Industrial Fabrics Association CALIFORNIA USA		 <i>The Flock Phenomen</i> Russell-Cotes Art Gallery and Museum, BOURNEMOUTH		 <i>Sex in the City</i> Urban Buzz Building Centre LONDON		 CIIF Award Arts Council NI – Premises and people		 25K Award		 RDS National Crafts Exhibition DUBLIN		 PLACE Belfast <i>Fabrication</i>		 Surface Design Show LONDON		 SPACE Craft Belfast		 Extreme Collaboration, Erin O'Connor <i>Catalytic Clothing</i> SHEFFIELD		 Bangkok Design Festival		 Kilkenny Arts Festival <i>Embracing Technology</i>	
	EXHIBITIONS	 <i>The Wall</i> Golden Thread Gallery		 Manchester Museum of Science and Industry		 RCUK Business Plan Semi-Final		 WISE presentation plaque for HRH Princess Anne		 Private Kitchen residence		 Derry Playhouse Installation		 Textile Futures Bradley Quinn. Girli Concrete. BERG PUBLISHING																				
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2005		2006		2007		2008		2009		2010																								
PRESS	 Arts Extra Interview: BBC Radio Ulster		 Good Morning Ulster: BBC Radio Ulster		 BBC News website <i>A vision made of concrete</i>		 Textile Quarterly <i>Innovative Textile Applications</i>		 Perspective Magazine <i>Art, Architecture and The senses</i> Mary Kerrigan		 Textile Futures Bradley Quinn. Girli Concrete. BERG PUBLISHING																							
	CITATIONS	 Couture Interiors, Marni Fogg <i>Why not carve flowers on our buildings</i>		 <i>Gender and The Built Environment</i> Clare Melhuish		 Living Design Magazine <i>Tactile Textiles</i> Rouge Design		 Intute Blog: selected for Education and Reseach		 <i>Drawing out the Interior</i> Ro Spankie		 <i>Made Concrete Plans</i>																						
PRESENTATIONS		 Crafts Council of Ireland <i>Creativity meets Technology</i>		 Concrete Centre LONDON		 <i>New Voices Future Craft</i> DUNDEE		 <i>Girli Concrete</i> Ars Textrina LEEDS		 King Mongkuts Institute of Technology THAILAND <i>Girli Concrete</i>		 100% Design London <i>New Materials</i>																						
	CONFERENCE / PAPERS	 <i>Fossilised Textiles</i> Kingston University		 <i>Soft Construction</i> Eindhoven University of Technology		 Oxford College <i>Developing Hybrid Materials between Academia and Industry</i>		 Textile Institute Hong Kong <i>InnovativeTextile applications</i>		 <i>Ars Textrina Leeds woven concrete</i>		 Textile Institute <i>The Textile Designer as added Value</i> MANCHESTER																						
TF COMPANY		 <i>A Hybrid Practice between Design &amp; Craft</i> BELGIUM		 <i>Set in Concrete</i> Crafting Innovation		 Project moves out of Academia. Premises Weavers Court		 Patenting process begins. Process ABC		 Textile Institute <i>The Textile Designer as added Value</i> MANCHESTER		 <i>A Hybrid Practice between Design &amp; Craft</i> BELGIUM																						



AWARDS							
	Index DUBAI						CIIF Arts Council NI Big Textiles award
	Material Connexion NEW YORK						Museum of Here and Now NI Science Park Innovation Centre
	Palastine Sunbird Pavillion. Dreamspace London Cultural Olympiad						
EXHIBITIONS	Craft meets Technology Kentucky Museum of Art & Craft KENTUCKY USA						
	Eco Build Lafarge Stand <i>The Tower</i>						
COMMISSIONS	Vivienne Westwood Art Piece for Berlin Art Show						
	James Street South restaurant <i>Not for Paul</i> velvet panels						Private House BRE British Research Establishment Logo
COMPETITIONS	Homes and Gardens Design Awards: Runner up British Museum LONDON		Iceberg House Des Ewing private residence		Restaurant Hyatt Hotel ABU DHABI		



AWARDS

AHRC – *Linen Lace Concrete*  
Return to source

EXHIBITIONS

COMMISSIONS

COMPETITIONS

AHRC showcase: Design Festival London

Linen Biennale Irish Linen Centre LISBURN

Private Comission

	2017	2018	2019
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PRESS

CITATIONS

PRESENTATIONS

Concrete Café Concrete Centre LONDON  
*Linen Lace Concrete*

Lecture on TF work [RM]  
Iceland Academy of The Arts, ICELAND

*Our Linen Stories* [TB]  
Twilight talks, Dovcot Gallery EDINBURGH

CONFERENCE / PAPERS

*Material Witchery*  
Tactility Factory as a site of emerging practice

Textiles and Place MANCHESTER  
*Linen Lace Concrete*

*The Alchemy of Screen Print Experimentation* [TB]  
Fashion & Textile Museum LONDON

TF COMPANY

Returning to source  
*Linen Lace Concrete* collaboration  
Advanced building materials: GMBH

Publication  
*Linen Lace Concrete*

Tactility Factory closes  
Tactility Lab opens

FUNDED BY THE ARTS AND  
HUMANITIES RESEARCH COUNCIL



